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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,397	02/18/2004	Daniel L. Franklin	100P270US01	1881
23322	7590	09/07/2005	EXAMINER	
IPLM GROUP, P.A. POST OFFICE BOX 18455 MINNEAPOLIS, MN 55418			LIN, ENG HOUR	
			ART UNIT	PAPER NUMBER
			1725	
DATE MAILED: 09/07/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

*He*

**Office Action Summary**

Application No.

10/781,397

Applicant(s)

FRANKLIN ET AL.

Examiner

Ing-Hour Lin

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. In view of prior art cited in this office action, the final rejection mailed on 4/20/05 is withdrawn.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claims 1, 5, 7-8, 11, 17-19 and 22, a “pattern” is unclear. Is it a –pattern box--?

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 8-9, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Siak et al (US Patent No. 6,843,303) or Matalon in view of Rikker.

Siak et al (US Patent No. '303) (col. 2, lines 64) substantially teach the claimed method of making a sand mold (core making), comprising the use of drawing a partial vacuum on the core (pattern) box 10 through antenna plate 34, vents passages 29, 30 of the cope 16 and drag 18 for the purpose of removing water vapor and hardening the mold (core) (col. 4, lines 51+). Matalon (col. 11, lines 45+) teaches the claimed method of making a sand mold, comprising: placing a sand mold mixture containing moisture (water) into a pattern (mold box) having perforation plates 1, 2 for restraining the sand mold mixture in the mold box and drying the water in the mixture. Either Siak et al (US Patent No. '303) or Matalon fails to teach the use of a restraining member for the pattern or core box.

However, Rikker (col. 12, lines 22+) teach the use of a restraining member (perforated base 64) of a pouring container 10 having five sections 50, 52, 54, 56 and 58 connected together by a bracing clamping members 60 and the lower section 50 includes perforated base 64 having apertures 64A containing porous plugs made of an incompressible material for the purpose of allowing gas to permeate into and out of the molding medium contained within section 52, 54, and 56 but preventing the molding medium from falling into the section 50, wherein the base 64 is connected to a vacuum pump 196 for the purpose of flashing off the air (moisture) in the container. It would have been obvious to one having ordinary skill in the art to provide Siak et al

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(US Patent No. '303) or Matalon the use of restraining member 64 of a pouring container 10 as taught by Rikker in order to effectively flashing off the moisture of the sand mold mixture containing water moisture in the pattern or core box with the restraining member 64 and produce a hardened mold (core) without void or crack.

7. Claims 2-7, 10-15, 17 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Siak et al (US Patent No. 6,843,303) or Matalon in view of Rikker and further in view of Siak et al (US Patent No. 5,320,157).

Siak et al (US Patent No. '303) or Matalon in view of Rikker fails to teach the use of a particular value of vacuum.

However, Siak et al (US Patent No. '157) (col. 7, lines 54+) teach the use of vacuum boiling for flashing off the moisture in the sand mold mixture (core) under a controlled water content of less than 4 weight % and the mixture (core) is preheated to a temperature of about 70° C to 80° C and the boiling vacuum is about 1 Torr (about 100 Pa) for the purpose of dehydrating the mixture and producing a high strength sand mold (core) in a short cycle period of less than 10 minutes. It would have been obvious to one having ordinary skill in the art to provide Siak et al (US Patent No. '303) or Matalon in view of Rikker the use of vacuum boiling for flashing off the moisture as taught by Siak et al (US Patent No. '157) in order to effectively produce a hardened mold (core).

Regarding to claims 3 and 14, Matalon in view of Siak et al and further in view of Siak et al (US Patent No. '157) fail to teach the particular range of vacuum. However, the use of 4-5

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Torr for the boiling vacuum would have been obvious to one having ordinary skill in the art in order to effectively produce a hardened mold (core) without porosity.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ing-Hour Lin whose telephone number is (571) 272-1180. The examiner can normally be reached on M-F (8:00-5:30) Second Friday Off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

I.H.L.

I.-H. Lin

9-2-05

  
**KUANG Y. LIN**  
**EXAMINER**  
**GROUP 320**  
1725